Having thus described the preferred embodiments, the invention is now claimed to be:

1. A method of humidifying a hydrocarbon stream comprising:

passing the hydrocarbon stream through a bed comprising a packing material and water, thereby forming a humidified hydrocarbon stream.

2. The method of claim 1, wherein the packing material is in the form of particles.

3. The method of claim 1, wherein the hydrocarbon stream is passed upwardly through the bed.

4. The method of claim 3, wherein the packing material comprises particles, the particles having a smaller average diameter adjacent a bottom of the bed than adjacent a top of the bed.

5. The method of claim 4, wherein the particles in the bottom layer have an average diameter of approximately 0.2 to 0.5 centimeters and the particles in the top layer have an average diameter of approximately 1 to 1.5 centimeters.

6. The method of claim 1, wherein the packing material comprises porcelain.

7. The method of claim 1, wherein the hydrocarbon stream includes at least one hydrocarbon from mono-unsaturated alkanes and conjugated dienes.

8. The method of claim 7, wherein the hydrocarbon includes butadiene.

9. The method of claim 7, wherein the hydrocarbon stream further includes a solvent in which the hydrocarbon is soluble.

10. The method of claim 9, wherein the hydrocarbon comprises butadiene and the solvent comprises hexane.

11. The method of claim 1, further including, after the step of passing the hydrocarbon stream through the bed:

allowing liquid water to fall out of the humidified hydrocarbon stream in a head space above the bed so that the humidified hydrocarbon stream is substantially free of undissolved water.

12. The method of claim 1, further including:

combining the humidified hydrocarbon stream with a second portion of a hydrocarbon stream to achieve a desired moisture content.

13. The method of claim 12, wherein the humidified hydrocarbon stream includes about 200 ppm water and the step combining the humidified hydrocarbon stream with a second portion of a hydrocarbon stream results in a humidified hydrocarbon stream having a moisture content of from about 10 to about 150 ppm.

14. The method of claim 2, wherein said particles are generally spherical.

15. The method of claim 1, further including;

recycling at least a portion of the humidified stream through the bed.

16. The method of claim 1, wherein the hydrocarbon stream is a liquid.

17. An apparatus for humidifying a hydrocarbon stream comprising:

a vessel which defines an interior cavity and having an inlet adjacent a lower end of the cavity for receiving a hydrocarbon stream;

a bed of a packing material in the cavity; and

water filling at least a portion of the bed.

18. The apparatus of claim 17, further including:

a second inlet in the vessel for adding water to the vessel.

19. The apparatus of claim 17, further including a return line for returning a portion of a hydrocarbon stream which has been humidified to the cavity.

20. The apparatus of claim 17 further including:

a mixer for mixing the humidified hydrocarbon stream with an unhumidified hydrocarbon stream to form a combined stream; and

a sensor for detecting a moisture content of at least one of the unhumidified hydrocarbon stream and the combined stream.